

LISTing Newsletter

Newsletter of the Long Island
Sinclair/Timex Users Group

Next Meeting

WILL BE SUNDAY APRIL 9
AT 2 P.M. AT THE HOME OF HARVEY
RAIT



Listing Policy

Annual Dues \$16.00

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PLEASE SEND ALL INQUIRIES AND
SUBMISSIONS (INCLUDING DUES)

TO: L.I.S.T.
HARVEY RAIT
5 PERI LANE
VALLEY STREAM, N.Y. 11581

COMING EVENTS: THE NEXT L.I.S.T.
MEETING WILL BE SUNDAY APRIL 9
AT 2 P.M. AT THE HOME OF HARVEY
RAIT (SEE ADDRESS ABOVE).

REPORT ON THE MEETING OF MARCH
12:

THE MEETING STARTED ON TIME AT
2:00 P.M. WITH 7 MEMBERS PRE-
SENT.
FURTHER DISCUSSION WAS GIVEN
TO THE DISPOSITION OF THE LOAD
OF MAGAZINES AND PUBLICATIONS
THAT HAVE ACCUMULATED OVER THE
12 YEARS THAT WE HAVE BEEN OR-
GANIZED. THERE WAS NO RESPONSE TO
THE OFFER THAT WAS IN OUR NEWS-
LETTER TO TAKE THEM FOR FREE.
ANOTHER OFFERING WILL BE MADE
INCLUDING PREPARING A DISC FOR
BOB MALLOY TO SEND OUT ON THE
INFORMATION HIGHWAY.

ONE NEWSLETTER ENVELOPE WAS RE-
TURNED BY THE POST OFFICE WITH
NO ADDRESS LABEL AFFIXED. THERE-
FORE THERE IS SOMEONE OUT THERE
WHO DID NOT RECEIVE THEIR MARCH
ISSUE. IF YOU READ THIS NOTICE
AND ARE THE AGRIEVED PARTY,
PLEASE LET ME KNOW AND THE
ISSUE WILL BE SENT TO YOU.

LISTINGS FROM HARVEY R.

I WAS VERY IMPRESSED WITH THE INFORMAT-
ION THAT WE PUT INTO OUR MARCH
NEWSLETTER. AS A CONTRIBUTING EDITOR
I DID A FAIR AMOUNT OF THE PAGES THAT
WERE INCLUDED BUT I WAS NOT 100%
SATISFIED BECAUSE THERE WERE NO
ARTICLES FOR THE TS-1000. WE
PRIDE OURSELVES IN STILL BEING ONE
OF THE FEW USER GROUPS THAT SUPPORT
ALL 3 MODELS (TS-1000, TS-2068, AND QL).
FRED STERN IS OUR RESIDENT TS-1000
MAVEN AND SINCE HE HAS NOT RELOCATED
YET, WILL PROVIDE SEVERAL PAGES TO
THIS ISSUE.

THERE HAS TO BE SOMEONE OUT THERE
THAT NEEDS HELP OR INFORMATION ON
THEIR SYSTEMS, SO GET IN TOUCH WITH
US AND LET OUR EXPERTS HELP YOU.

FOR ANYONE THAT IS INTO THE QL I
HEARTILY RECOMMEND SUBSCRIBING TO
IQLR (INTERNATIONAL QL REPORT).
I SUBSCRIBED TWO WEEKS AGO AND
HAVE ALREADY RECEIVED THE FIRST
BI-MONTHLY ISSUE.

IF YOU ARE INTERESTED, THE USA
YEARLY RATE IS \$20.00 PER YEAR
SEND CHECK OR POSTAL MONEY ORDER
TO: IQLR, P.O. BOX 3991
NEWPORT, RI 02840-0987

REMEMBER BI-MONTHLY MEANS EVERY
TWO MONTHS, NOT TWICE A MONTH.

BY THE WAY THE MARCH/APRIL ISSUE
THAT I RECEIVED WAS 80 PAGES,
AND THE POSTAGE ALONE WAS \$2.50.

WHEN I STARTED USING MY SERIAL
PRINTER AGAIN I QUICKLY RAN OUT
OF RIBBON. THIS WAS A SEARS MODEL
S-600 THAT IS IN ACTUALITY A
BROTHER EP-44. I TRIED TO GET MORE
CARTRIDGES FROM A NEARBY STAPLES
BUT THEY DID NOT CARRY THEM IN
STOCK. TO BE FAIR THOUGH, THEY
OFFERED TO SPECIAL ORDER THEM FOR
ME. I DECIDED TO CALL BROTHER DIR-
ECT AND ORDERED THEM FROM THEM
INSTEAD. 6 CARTRIDGES COST \$40.80
PLUS SHIPPING. EACH CARTRIDGE HAS
A CAPACITY OF 40,000 CHARACTERS,
AND ARE NOT REINKABLE (i.e. HEAT
TRANSFER SINGLE USE). ALL IN ALL
NOT TOO BAD A BUY.
IF ANYONE NEEDS BROTHER SUPPLIES
THEIR # IS 800-284-4357

QL CORNER

The 3rd annual North American show will be held on Saturday, June 10th, 1995 in the city of Oak Ridge, Tennessee. QL traders attending the show are Stuart Honeyball of Miracle Systems, Tony Frishman of TF Services, Bill Richardson of WN Richardson and Co., Jochen Merz Software, Frank and Carol Davis of Mechanical Affinity and Update Magazine, Bill Cable of Wood and Wind Computing plus John Impellizzeri and Don Waltermann of QBOX-USA demonstrating their QL Bulletin board.

It is my understanding that Stuart Honeyball will have the Enhanced Graphics card, the Super GOLD Card and QXLs. Tony Frishman will have the Super Hermies, Minerva ROMs and I2C interfaces and Mechanical Affinity will have the QUBIDE Hard Disk Interface plus most of the QL software and hardware from abroad.

Advance registration will be \$3.00 or \$5.00 at the door. And as usual, a Dutch Treat dinner after the show. Contact IQLR at their North American Office, P. O. Box 3991, Newport, RI 02840-0987 or telephone Bob Dyl at 1-401-849-3805. For additional information call or write to Mel La Verne, 103 Endicott Lane, Oak Ridge, TN 37830-4117; Telephone 1-615-483-4153

The show will be held at the Faith Lutheran Church, 1300 Oak Ridge Turnpike, Oak Ridge, TN. If you plan to stay overnight either before or after the show, the Super 8 Motel, 1590 Oak Ridge Turnpike, Oak Ridge, TN. Reservations by telephone: 615-483-1200. Single room rates are \$37.00 and double rates are \$41.00 and this includes a free Continental breakfast.

I am sorry to say that I will not be able to attend this years show due to personal circumstances. For call of you in QL land attending this years show, have a GREAT Time.

Several weeks ago, I received the latest catalog from ALL Electronics Corp. They are selling BRAND NEW Sony 720Kb Floppy Disk drives for \$17.50 each. Ten drives at \$16.00 - this is great for a QL club purchase. Bob Malloy and I ordered several of them and they are extremely quiet. The face plates are black and the drives are switchable for flp1_thru flp3_. All Electronics also sells a 5.25 installation kit which includes a BEIGE bezel, 3.5 inch to 5.25 inch power cable and the card adaptor for \$3.50. I spray painted the beige bezels semi-flat black and match the drive bezel perfectly.

Sony 720Kb, 3.5" drive CAT # MPF-11 \$17.50 each, \$16.00 for 10. Installation Kit for MPF-11, CAT # FDD-3.5, \$3.50.

For those of you that like to make up Disk Drive power cables, All Electronics sells a harness with seven (7) female power connectors, with four (4) lead cables at \$2.25 per harness. CAT # PCL-2.

All Electronics Corp., 14928 Oxnard Street, Van Nuys, CA 91411. Telephone: 1-800-826-5432.

Last month when I completed writing the March issue of QL Corner in The Editor, I entered W.SER1 to print out the copy for proof reading and nothing happened. Total panic!! - well not quite. I immediately switched over to another QL which responded and gladly printed out my text. Now to locate the fault.

This has happened to me several times in the past six to seven years and the fault was always the same, a faulty, 14 pin, 751488 serial chip, which is soldered onto the QL's PC board. This chip is located at the bottom right side of the 8302 IC and the top left side of the 8047 IC. Removing the 751488 IC can be done in several ways - clip all fourteen leads from the top of the PC board, hold a soldering iron at each pin junction and remove each pin with a needle nose pliers and then suck out any solder residue with a solder sucker - or you can purchase a de-soldering iron from Radio Shack for approximately \$10.00.

Using a de-soldering iron isn't difficult to master. I have found that the first thing to do is to apply 60/40 solder to each pin with a soldering iron. This adds extra tin to the solder joints and makes the IC removal lots easier. After adding the solder to the pins, depress and hold the suction bulb and slowly rotate the hollow de-soldering tip around the pin, touching the pin as you rotate the tip. This heats up the pin and solder at the same time and after several seconds release pressure on the bulb and you will note a clean area around the IC pin. Repeat this until all pins are de-soldered. Using a narrow screw driver as a lever, the IC can be extracted. Insert a 14-pin, low profile socket into the PC board and solder it in place. The replacement 751488 chip can then be inserted into the socket (the notch on the IC faces the back of the QL PC board).

There is another 16 pin companion IC serial chip, the 751489 which provides + - voltage. I have never had to replace this one, however, if I have to remove one of these two ICs, I remove the other so that both are housed in IC sockets.

Both ICs are readily available from many electronics supply houses at a fair price from about 50 cents to 75 cents each. BG Micro sells the 75188 and 75189 for 50 cents each. Sometimes these ICs are ID as 1488 and 1489. There is a CMOS version of these chips: 14C88 and 14C89 and they are priced at 79 cents each. I haven't ordered the CMOS version chips, however, the next time I order ICs, I will order several pairs of these Serial chips. CMOS chips require less current than the old time standard chips and for the QL, the QL should run a tad cooler.

For those QL hackers who may be looking for an outstanding purchase of 41256, 100 NS memory chips, B. G. Micro has an offer which is hard to believe. They are selling DTK Turbo XT Motherboards completely loaded with 640K RAM. The motherboards are tested and guaranteed to run. These boards have 18, 41256 RAMS (as used for the QL), 4, 4164 RAMS and 2, 4164 RAMS, all RAMs are in sockets so they can be removed easily. If you have a 256K Trump Card, here is a chance to populate the 256K Trumpcard at the fraction of what it would cost if you purchased these chips from a supplier.

Ask for the DTK TURBO XT Motherboard at \$15.95 each.

B. G. Micro, P. O. Box 280298, Dallas, TX 75228.
Telephone: 1-800-276-2206 Credit Card orders accepted.

See you next month... Bob Gilder

```

10 SAVE "LOAN"
15 POKE 16513,234
20 PRINT "AMOUNT OF LOAN?"
30 INPUT A
40 PRINT A
50 PRINT "ANNUAL INTEREST RATE"
60 INPUT R
70 PRINT R
80 PRINT "LOAN DURATION IN MONTHS?"
90 INPUT M
100 PRINT M
110 LET Z=(R/100)/12
120 LET D=(1+Z)**M
130 LET D=1-(1/D)
140 LET P=A*(Z/D)
150 LET P=.01*INT (P*100+1)
160 PRINT "PAYMENT=";P
170 PRINT
200 SCROLL
210 FOR I=1 TO M
220 SCROLL
230 PRINT AT 0,0;"NO. INTERST"
240 PRINT AT 0,0;"PRINCIPAL BALANCE="
250 LET Y=A-Z
260 LET Y=INT (Y*100+.5)/100
270 IF R>A THEN LET R=A
280 LET A=INT (.5+100*(A-R))/10
290 PRINT AT 21,8;".00";TAB 18;
300 NEXT I

```

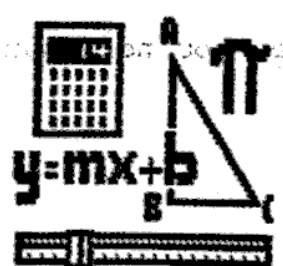
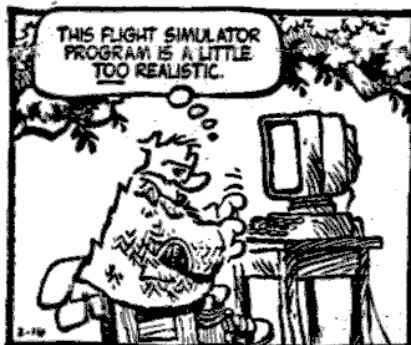
TIMEX/SINCLAIR TIMING

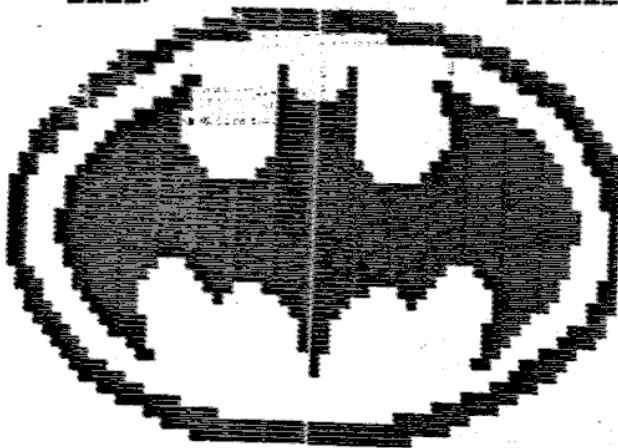
The following are timing command execution times.

COMMAND	FAST	SLOW
FOR/NEXT per iteration	.0040	.0274
CLS	.0930	.5676
PRINT AT 0,0	.0176	.0925
PRINT AT 0,0:X	.0197	.7226
PRINT AT 0,0:"ZX-81"	.0188	.0991
LET A=X+125	.0049	.0206
LET A=X-125	.0056	.0220
LET A=X*125	.0062	.0262
LET A=X/125	.0066	.0305
LET A=SIN 30	.0435	.2609
LET A=COS 30	.0457	.2707
LET A=TAN 30	.0883	.5334
LET A=ASN .5 (or ASC .5)	.1808	1.1069
LET A=ATN .5	.0628	.3724
IF/THEN	.0057	.0210
GOTO	.0032	.0109

All times are in seconds.

SHOE





BATMAN

ANDRE***

Games

Who is the President!
C-Harvey Rait.

A-Bill Clinton B-O.J. SIMPSON
A,B,C Circle

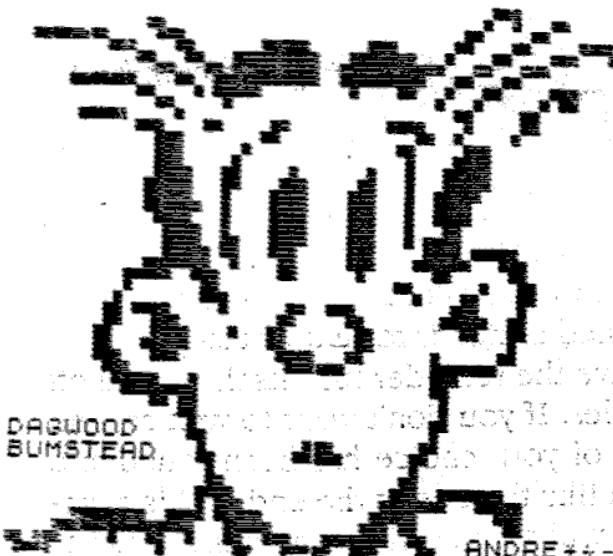
Hint!QL
R-b-r- G-l-en

Hint!-Fla.
F---r-c --e-n

Hint!-Funny
-a-lo-,Rob--t

Hunt!-Friendly
T-- S-a-i--ki

1. Sinclair Printer
2. Bob Gilders computer
3. Disk Drive makers
4. Ts -668 a color computer
5. The President Not Clinton



DAGWOOD
BUMSTEAD

ANDRE**

Knock
Knocks-

T-1000:Knock Konock
T-2068:whose there
T-1000:T-1000
T-2068:T-1000 who
T-1000:Its me silly goose

QL-Knock Knock
SPctrm-Who-is -there
QL-Who
SPctrm-Who-Who
QL-Be Quiet you owl!





The Automatic Tape-Recorder Controller

Let's say that you didn't choose to tackle one of the previous projects. That's fine; I don't blame you for wanting to start with something less complicated than, for instance, the appliance controller. There are other things that can be done with the 2068 that are just as interesting and helpful as the projects previously discussed. Before you start any of them, however, you must read all the material on electronic controls that has already been presented. You must do this in order to understand some of the things that are presented here. Many of the relevant component diagrams also are shown in previous sections. It is especially necessary that you understand and build both the 7475 output port and the 8212 input port (chapter 3) for the upcoming projects.

There are many things that you could try. After reading some of the control details, you probably can think of projects that are more exciting than the projects that are listed here. By all means, be as creative as you wish. With the 7475 output port and the 8212 input port, you can do almost anything. Take a shot at your wildest idea. It might be just the thing that we've been looking for since the invention of the transistor.

The projects presented in the rest of the chapter are mainly one-purpose designs, but it's quite possible to combine some for several purposes. The electronics aren't simple, though; they involve state-of-the-art components. Again, study the previous discussions of control before you build any of the circuits presented from here on.

The Timex/Sinclair 2068 is blessed with the ability to load and save data files separately, but not automatically. You must be there in person to push the tape recorder's *play* and *record* buttons to turn the recorder off or on at the exact second that it has finished or needs to start its task.

You can use the output port to have the recorder turn itself on and off automatically to save and load data files. If you don't want to wait around to cut the recorder off when the file of your choice has been found and loaded, simply insert a small program like the one at the end of this chapter, and go take a break. The recorder will shut itself off when the load (or save) is complete.

Turning things on and off is a specialty of the 2068. Most recorders can be hooked up to the 7475 output port to obtain this on-and-off switching capability. A 5-volt relay (figure 4.6) is a good device to use for this purpose since we will be switching the recorder motor on and off. The motor that drives the recorder's spindles is not small, so a relay is used to switch the power. Figure 4.7 is a complete detail of the components and connections you'll need in order to build the recorder's control.

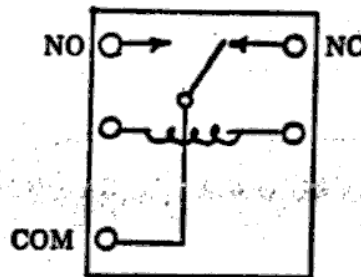
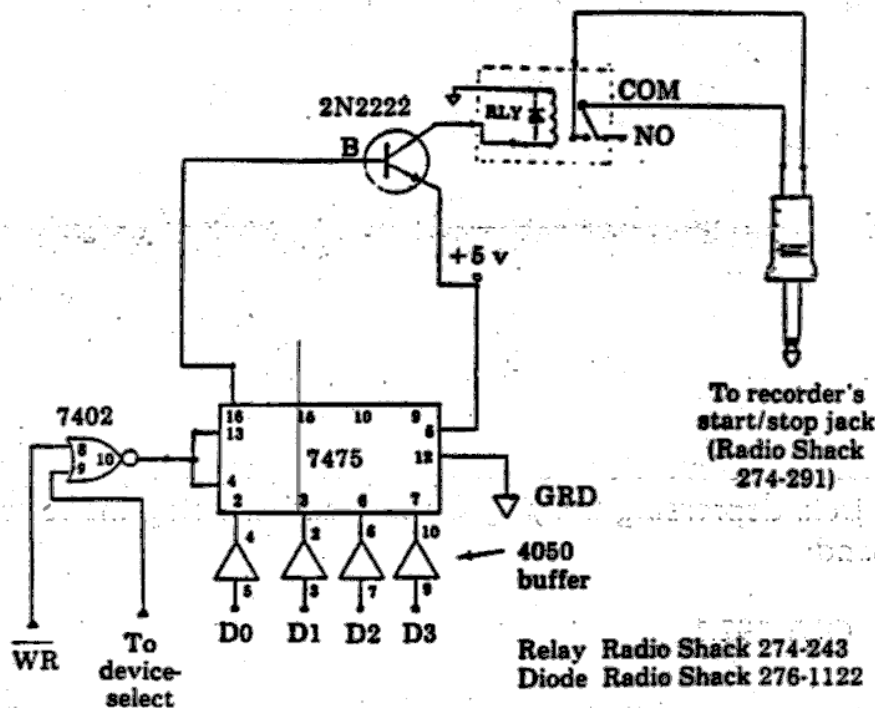


Figure 4.6
A pinout of the Radio Shack 275-243 5-volt relay. Other relays have different pinouts.

Figure 4.7
The complete circuit of the automatic tape-recorder controller. The start/stop plug should be selected to match the recorder's control jack.



First, you need a recorder that has the small extra jack on the MIC connection that allows you to use the mike as a pause button. Most recorders have this. But, if yours doesn't, then you might want to remove the recorder's case and add a pause jack to the red lead of the motor wiring. It's not too complicated to do this with most units.

The control diagram (figure 4.7) shows that the relay is driven by a 2N2222 transistor that is turned on and off by the data presented on pin 16 of the 7475 output port. If the data reads 1, the recorder's motor is engaged; if the data reads 0, the recorder stops. Of course, you will need a small jack plug that fits the pause jack. This plug can be easily obtained from most local supply outlets such as Radio Shack. The Radio Shack number is listed in figure 4.7.

Notice that the common connection of the relay is resting on the NO (normally off) post (figure 4.7). The activation of the relay simply connects the COM (common) and NO points, and the recorder's motor starts. Deactivation (giving the data word 0 to the port) stops the recorder. If you need to operate the recorder without giving a command to the port, just unplug the pause plug, and you are back to normal operation.

Wire the circuit as shown in figure 4.7. Since there are so few components and connections, this is a good circuit to breadboard for testing. You may notice that there is a small diode connected between the coil leads on the relay (figure 4.7). The diode is there to cancel any spikes that might develop when the coil is de-energized. You really should insert one to be on the safe side. I didn't, and there were no problems, but, if the computer had been driving the relay directly, you can bet that there would have been. If you want to be safe and not take a chance on ruining your 2N2222 transistor or the 7475 IC, insert the diode as shown. The Radio Shack number for it is 276-1122. Once the complete circuit is working, you might want to wire it more permanently. As shown, the 7475 port is connected to device-select 192. You can change this to 193, 194, and so on by selecting various pins on the 74LS154 decoder (see figure 3.17 in chapter 3).

Once you have the controller wired, make sure the port is cleared by entering:

OUT 192,0

Then test the controller's operation by inserting the pause plug into the pause jack, depressing the *play* button, and entering the following direct command:

OUT 192,1

The recorder should start immediately. To stop the recorder, enter:

OUT 192,0

Now you are ready for the big time—automatic data loading and saving, just as the Wangs can do! Enter and run the following program with the recorder connected. The response of the program will amaze you:

```

1  LET X = 0
5  DIM A(50)
10 FOR N = 1 TO 50
15 LET A(N) = X
20 LET X = X + 1
30 NEXT N
40 OUT 192,1
45 PRINT "PRESS RECORD AND PLAY BUTTON"
50 SAVE "LIST" DATA A( )
55 OUT 192,0
60 PRINT "IF YOU WISH TO RECALL DATA FILE, PRESS PLAY
    AND ENTER Y"
70 INPUT Z$: IF Z$ = "N" THEN GOTO 100
75 PRINT "PRESS REWIND": OUT 192,1
80 LOAD "LIST" DATA A( )
85 OUT 192,0
90 FOR N = 1 TO 50: PRINT A(N): NEXT N
100 STOP

```

Lines 1 through 20 of the program set up a numeric array and fill it with numbers from 1 through 49. This array could be file data that has been entered with an accounting program. Line 40 activates the recorder, and line 50 saves the data on tape. Line 55 stops the recorder.

To play the data back into memory from tape, press *rewind* and enter Y in response to the input command in line 70. The 2068 will prompt you to press the *play* button and will automatically load the data and display it on the screen. This program only shows the capability of the controller, but it could be effectively used as a routine in a much larger, multitask program (such as a data-base or spreadsheet program) that needs to store and load several different files. With a little ingenuity and a couple of electromagnetic solenoids hooked up to a couple of relays from the port, you could even automate the pressing of the *record*, *play*, and *rewind* buttons. I can't tell you exactly how to experiment with that idea because recorder mechanisms vary considerably. But, generally, just connect a relay to the solenoid, connect the solenoid shaft to the appropriate lever(s) on the recorder, and you will have a completely automated unit. (Radio Shack's part number for the solenoid is 273-251.)